Bellona Europa Consultation Reply Revised TEN-E Regulation

The TEN-E Regulation has since its creation in 2013 contributed greatly to its set objectives and aims. A much-needed revision is now underway to ensure alignment of these aims with the European Green Deal, shifting the TEN-E’s focus from security of supply to security of sustainable supply in line with the Union’s decarbonization targets.

Although the current proposal for a revised TEN-E regulation improves the legal text across several of the included categories, no changes have been made to the Priority Thematic Area (12) “Cross-border carbon dioxide (CO2) network”.

Bellona Europa has supported the ongoing revision process from the start, including participation to the targeted evaluation study through interview, highlighting in particular the need to include CO2 storage and transport modalities other than pipelines. Despite our efforts, the current proposal from the European Commission does not include these two important aspects, we therefore find it necessary to again highlight our recommendations in this consultation reply to the TEN-E Regulation.

Additionally, while the draft proposal longer includes a dedicated natural gas category, it has seemingly merely been replaced by the category “smart gas grids” with references to various forms of “renewable and low-carbon gases”. The inclusion of ill-defined low carbon and renewable gases in the draft TEN-E Regulation, would still allow fossil gas projects and development of new fossil infrastructure to be eligible for Project of Common Interest (PCI) status.

**European Commission’s TEN-E proposal not aligned with European Green Deal objectives**

By not addressing or amending the category of CO2 networks, the current proposal is in direct contrast with the underlying justification for the ongoing revision of the TEN-E Regulation, as outlined in the European Green Deal:

“The regulatory framework for energy infrastructure, including the TEN-E Regulation, will need to be reviewed to ensure consistency with the climate neutrality objective. This framework should foster the deployment of innovative technologies and infrastructure, such as smart grids, hydrogen networks or carbon capture, storage and utilization, energy storage, also enabling sector integration.”

Current deployment and development rates of CO2 capture and storage projects are insufficient to meet the needs for net-zero by 2050. A monumental shift in policy is needed and the aim is within reach if the necessary steps are taken to facilitate the commercialization of full value-chain CO2 capture and storage. The EU is at a watershed moment, and not acknowledging TEN-E and CO2 storage’s role on the pathway to net-zero by 2050 is a missed opportunity taking us down the wrong path. Ultimately, with ever more stringent CO2 constrains, the provision of CO2 storage is a prerequisite for a level playing field for industry across Europe’s Single Market.

The exclusion of CO2 storage is also in direct contradiction with other EU policy such as the Sustainable Finance Taxonomy, clearly stating that abatement technology such as carbon capture and storage, when contributing to the activity in question reaching the set emission threshold, will be seen as eligible. This was correctly acknowledged in the Regulatory Scrutiny Board’s Opinion on the TEN-E Impact Assessment, stating that:
“It should also explain why it does not directly use the taxonomy Regulation to ensure alignment of the list with the Green Deal”\(^1\)

The exclusion of the full value chain of CO\(_2\) capture and storage from the TEN-E is not only a missed opportunity, it sends a dangerous signal to potential investors, increasing the perceived riskiness of such projects when the TEN-E should help reduce it if done right. Seeing as CO\(_2\) capture and storage is an integral part of the European Commission’s own scenarios to reach set targets, the exclusion puts into question the EU’s dedication and chances of reaching the set climate target of net-zero by 2050. The TEN-E, in its current form, thus fails to reduce the very investor risk and barriers for technological development it is intended to alleviate, with harmful effects to EU’s decarbonisation efforts.

**Fossil Gas: Not excluded, just hidden**

While the draft proposal longer includes a dedicated natural gas category, it has seemingly merely been replaced by the category “smart gas grids” with references to various forms of “renewable and low-carbon gases”. In fact, Bellona Europa has reported on deliberate attempts by the gas industry to obfuscate the future gas mix by using misleading or confusing terminology, with specific references to “decarbonised” and “renewable” gas, in the past— and our point still stands.

The inclusion of ill-defined low carbon and renewable gases in the draft TEN-E Regulation, would still allow fossil gas projects and development of new fossil infrastructure to be eligible for Project of Common Interest (PCI) status. Without clear enforceability or accountability written into the Regulation, new gas infrastructure that has the potential to transport bio-methane and synthetic methane will be eligible for support. As these gasses are chemically identical and interchangeable with fossil gas, all existing and planned gas infrastructure is easily accommodated for in the revised TEN-E.

For example, building a fossil gas pipeline today that comes with a narrative that the pipeline is “ready” to transport “renewable or low carbon gasses” in the future is all that is needed for gas to re-enter the TEN-E. This gas infrastructure will be described as “Future Ready”, “Synthetic Methane Ready” or even “Hydrogen Ready” but will transport fossil gas for the foreseeable future.

A gas pipeline that is “ready” to transport renewable gasses is totally non-binding and provides no mandate for that infrastructure to develop or transport new lower carbon gasses. We do not need to look far to see how intentionally unenforceable “readiness” is. For more than a decade every fossil gas and new coal power plant in Europe was built to be “CCS Ready”. In reality this means next to nothing, with zero tangible modifications to the design or planning of the plant. Being CCS ready imparts zero additional mandate to reduce emissions or deploy CCS. In reality it was nothing more than a lazy box ticking exercise. Read more on CCS readiness here.

**Smart Gases for “Smart Gas networks”**

The illustration below was presented by the gas industry during the last Madrid Forum, the biannual European gas regulatory forum that brings together gas stakeholders and EU policy makers, and it provides their view on how renewable, decarbonised and low-carbon gases should be

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defined. However, as our comments in red point out, these categories of renewable and decarbonised gases are not as green as they seem.

Notably, the inclusion of ‘Synthetic gas’, produced by the methanation of fossil CO2, will result in recarbonisation (of the hydrogen used, which should be used directly as a clean fuel, not combined with fossil carbon) rather than decarbonisation. If the CO2 comes from a fossil source, the methanation process only transfers emissions from one part of the system to another, where they escape back into the atmosphere when the ‘synthetic gas’ is combusted.

Presenting hydrogen as part of this patchwork quilt of terms, when both a dedicated hydrogen category and electrolysis category is included in the draft TEN-E, is reason for concern. Despite claims that PCIs sustainability assessment has been strengthened in the revised TEN-E, it does not safeguard the climate impact of the Regulation and differ between categories. Included in two categories, this means hydrogen not in line with the sustainability assessment in the hydrogen category could be eligible as a PCI under the “smart gas grid” category – with a different set of criteria. This, in combination with the
unclear nature of the sustainability criteria, jeopardizes the climate impact (or indeed relevance) of the TEN-E by e.g. allowing support for hydrogen from non-renewable electricity.

We cannot allow garbled language to justify the further development of already extensive gas infrastructure, when by the European Commission’s own admission: “Considering that the future natural gas demand is estimated to significantly decrease in line with the Green Deal objectives, natural gas infrastructure no longer needs support through the TEN-E policy”.

The monumental challenge of deploying enough renewable energy to phase out fossil fuels must not be compromised by these ineffective and damaging ‘solutions’ – the priority must be to deploy wide-scale electricity transmission infrastructure if we are to have any hope of meeting the EU’s net-zero target.

**Climate Change Mitigation contribution of CO2 storage not recognized**

TEN-E has already contributed to early-stage development of a European CO2 network through existing support of CO2 transport projects. 5 projects were approved on the 4th PCI list. Combined they could transport almost 34 Mt/yr, though exact numbers can change depending on including additional CO2-sources. The significant positive contribution from the TEN-E in recognizing CO2 networks, though limited to transport, as key to the European Union’s set objectives has been instrumental for international recognition, to facilitate project development and deployment – and not least to boost investor confidence in such projects.

The revision of the TEN-E Regulation is a watershed moment for the future of Europe’s CO2 networks. Not recognizing the climate change mitigation contribution of CO2 storage in the proposal is not just a missed opportunity, it is in direct contrast to the decarbonization objectives of the Union.

The European Commission’s proposal itself takes no account of the climate mitigating impact of CO2 storage, excluding it from PCI status, stating that the sustainability of any CO2 network PCI will be limited to its ability to transport CO2. The transportation of CO2, and specific projects executing such transport, cannot be automatically considered sustainable or contributing to the climate targets of 2030 and 2050 as set out in the European Green Deal. The significant decarbonization benefits through CO2 networks are realized by transport and storage in conjunction - the full value chain should therefore be eligible for funding and the benefits accompanying PCI status through the TEN-E Regulation to deliver on the plans set out in the European Green Deal.

The current proposal’s exclusion of CO2 storage facilities and transport modalities other than pipelines to be eligible for PCI status and the significant benefits which it entails – leading to significant opportunity costs and potential delays to reach the 2030 and 2050 climate targets. The IEA forecasts 2.3 GtCO2 must be stored each year by 2060, while IPCC pathways show up to 1,200 GtCO2 needs to be stored cumulatively by 2100. In Europe alone, there is about 500 GtCO2 storage, almost 150 times the EU emissions in 2019. Costs to limit global warming to 2dg is 138% higher without CO2 capture and storage, meeting the Paris Agreement without it could as such cost Europe an additional 1 trillion USD.  

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2 The Role of CO2 Storage – Analysis - IEA  
3 https://www.slideshare.net/Ervia_Official/carbon-capture-storage-in-ireland-102593861
CO2 networks with the aim of permanent storage is a prerequisite for decarbonization efforts, and a vital part of the pathway to climate-neutrality – in particular for hard-to-abate industry sectors such as steel and cement. Recognition of this fact in the TEN-E would be an important step in making it clear to the wider-public, and boost investor confidence. As will be outlined below, there are significant opportunities and benefits by allowing TEN-E to play its intended role to facilitate the deployment and development of European CO2 networks. Though PCI status for CO2 storage projects would bring important access to funding through the Connecting Europe Facility (CEF), the benefits are not, as wrongly claimed by the Impact Assessment, limited to access to funding.

The EU must through the TEN-E Regulation show its dedication to CO2 networks and the significant climate mitigation potential it entails. This would ensure the EU as a true enabler and frontrunner on the path to net-zero.

**TEN-E addresses barriers for commercialization facing CO2 storage arising from market failures**

The discussions of how best to address market failures standing in the way of commercialized CO2 networks has been going on for decades, despite available technology and long-term reliance on CCS as a technology to reach set climate targets. In light of the ambitious increase in EU’s climate targets as introduced by the European Commission’s European Green Deal it is clear that the need for large-scale CO2 network has become even greater. Seeing as the main challenge facing CO2 networks is integrating capture, transport and storage into a single chain on a commercial scale from emissions sources, the TEN-E fails in its stated aim to develop CO2 network in view of the deployment of CO2 capture and storage – by excluding CO2 storage to benefits attained through PCI status.

**Lack of funding as barrier and inconsistent treatment of CO2 storage as opposed to other TEN-E infrastructure categories**

The Impact Assessment correctly outlines that “The key barrier to the deployment of CO2 infrastructure, including for the geological storage of CO2 and shipping, is access to financing”. While there is little doubt that the capital-intensive nature of CO2 storage projects is one of the greatest barriers to the development and deployment of such projects, this is also the case for other infrastructure categories already included in the TEN-E, and should in no way be used as a supporting argument for exclusion from the revised TEN-E. There is here a clear inconsistency in the treatment of CO2 storage as opposed to the other infrastructure categories included in the revised TEN-E Regulation. The Impact Assessment further justifies the current exclusion by available funding to such projects presented through the Innovation Fund. Again, other infrastructure categories included in the TEN-E are likewise eligible for funding through the Innovation Fund, and an exclusion for CO2 storage in particular on these grounds is inconsistent.

The inconsistency with which CO2 storage is treated, as opposed to other TEN-E infrastructure categories is also evident when evaluating the cross-border benefit of projects – CO2 storage’s significant potential cross-border benefits disregarded.

Any claim of CO2 storage infrastructure’s lacking relevance to the TEN-E due to it not necessarily physically crossing borders is a moot point in light of the TEN-E’s newly-introduced category of electrolysers as well as other storage facilities eligible for support included in the TEN-E. Just as electrolysers and different storage facilities are vital to achieve the set objectives of the European Green
Deal and support a European market for hydrogen, in turn is CO2 storage the ultimate goal of any CO2 transport. Without it the transport of CO2 alone does not ensure avoidance of emittance, and CO2 storage should likewise to electrolysers be included in the TEN-E. Cross-border benefits of CO2 networks will additionally be substantially increased by allowing other transport modalities in addition to pipelines.

TEN-E also includes “facilities for liquefaction and buffer storage of CO2 in view of its further transportation”. As the stated aim of any CO2 transport within the TEN-E is to be permanent storage, the justification underlying the decision to not include permanent CO2 storage projects as opposed to other infrastructure categories remains unclear. Building cross-border transport networks would be seemingly pointless without storage. Including storage as PCI will give the right signal to industry and investors and encourage further cross-border networks. Its role as a prerequisite for any CO2 network must be recognized in the TEN-E.

The significant cross-border benefits presented through CO2 storage becomes clear when recognizing that not every country has access to storage. As 40% of potential storage in Europe is in the North Sea, the very nature of CO2 storage facilities – in particular when combined with all transport modalities – is cross-border specific. Without cooperation between EU Member States facilitating steady supply of CO2 to storage and available storage sites to incentivize capture – Europe will not be able to develop a CO2 network. The TEN-E is the perfect starting point for such cooperation.

Similar to other infrastructure categories included in the TEN-E, CO2 storage projects do struggle to access sufficient levels of investments due to competitive disadvantages arising from faulty pricing mechanisms of CO2 emissions. This results in significant capital risk and undue risks taken on by the “first movers” on the path to a European CO2 network with the aim of permanent storage. Just as other infrastructure categories included in the TEN-E can access CEF funding “as a last resort financing option”, so should CO2 storage.

As acknowledged by the Impact Assessment: “CEF financial assistance was an important factor, grants for studies helped projects to reduce risks in the early stages of development while grants for works supported projects addressing key bottlenecks that market finance could not sufficiently address”. Why the benefits of funding through CEF should not be granted to CO2 storage projects in particular, is not properly justified in the Impact Assessment.

The Impact Assessment further claims that benefits other than funding available through PCI status will not be of significance to CO2 storage projects. We strongly disagree with this assessment, and have therefore outlined below how benefits through PCI status, currently not available to CO2 storage projects, could greatly contribute to improve the development and deployment of CO2 network projects.

Public Opposition as Barrier
It was made clear already in the Trinomics Impact Assessment from 2018⁴ that public opposition was considered as one of two main causes of delays (the other being complex permitting procedures, addressed below).

The aspects of the TEN-E Regulation (Article 9) to introduce requirements on transparency and public participation, with the aim to reduce public opposition, is an important tool in particular for CO2 Network projects. Several misconceptions and questions around CO2 storage still exist, and as acknowledged by the Impact Assessment, the feedback from the consultation process on CO2 projects were mixed “mostly justified by lack of knowledge”. This clearly illustrates the need for, and benefit available, through PCI status for CO2 storage projects – to overcome public opposition to such projects through dialogue, and where relevant seek to mend the existing knowledge gaps.

Through the mechanisms of TEN-E focused on public participation, it would be possible to discard dangerous misconception of CO2 storage, highlighting its necessity to net-zero by 2050. CO2 storage can be done in a safe and permanent way and it is nothing new. Clear communication and dialogue with the public is key to overcome public concerns.

**Lack of Investor confidence, market maturity and CCS paradox as barrier**

Due to its capital-intensive nature and perceived riskiness CO2 storage projects suffer from low investor confidence. This confidence is greatly influenced by current low market maturity resulting from the “CCS paradox”. On the one hand large emitters can start capturing CO2, but can’t be certain that the captured CO2 can be stored at a competitive price. On the other hand, large corporations need to invest huge amounts to develop storage sites but can’t be certain that there will be enough customers. In this sense, the current CO2 storage market is not mature – and the high prices associated with storage could get in the way of deploying large-scale CO2 capture. The TEN-E can greatly help alleviate the negative consequences of current market failures, contribute to a mature market and boos investor confidence. In fact, a continued exclusion of CO2 storage does not necessitate a continuation of “Status Quo” and could in and off itself be perceived as a negative market signal – reducing potential available private funding for such projects.

As the EU shows it is serious about contributing and facilitate the development and deployment of CO2 networks, with CO2 storage and an integral part, it will reduce capital risk for investors and potential future projects. In large part dependent on steady and stable security of supply of CO2, incentivising CO2 transport by other means than pipelines in the TEN-E can significantly contribute to improved Investment Case for CO2 storage projects. The significant benefits deriving from PCI status, a testament to the success of the TEN-E, must be recognised. CO2 storage projects could not only significantly benefit from the “stamp of approval” PCI status entail – boosting investor confidence – a failure to recognise the importance of CO2 storage on the pathway to net-zero by 2050 could have significant negative effects, the revised TEN-E must include CO2 storage projects as eligible for PCI status.

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Regulatory Treatment as barrier

As outlined in the 2019 CEPS report5 “An enabling framework for CCS in Europe”, CCS infrastructure could in an off itself be seen as a public good through its significant contributions to climate change mitigation. This opens up for concerns of “free riding” - disincentivising first-movers – which further strengthens the case for public support and intervention.

Similar to other low-carbon technologies, government policy is a necessary part of market creation. Government policy facilitating the development and deployment of CO2 networks is as such seen as an important stepping stone, and indeed a prerequisite, to creating and developing a mature market – to improve the investment case of such projects. While there are different ways in which the EU can provide support through regulatory treatment, inclusion of CO2 storage projects in the TEN-E is an important first step. Benefits through reduced permit granting procedures, cross-border cost allocation (CBCA) where relevant etc, are not to be disregarded when speaking of CO2 storage projects in particular. This will become all the clearer as the significant cross-border benefit of CO2 storage facilities are identified - further increasing the likelihood of cross-border cooperation to finalise such facilities.

As such, we strongly disagree with the Impact Assessment’s statement that: “There are no regulatory or administrative barriers in relation to cross-border networks that could be addressed by the provisions in the TEN-E Regulation”. The demand for EU efforts to facilitate projects for CO2 storage was most recently illustrated by the “Non-paper on CCS” by the Netherlands, Norway, Denmark and Sweden.

As outlined by CEPS’ 2019 report “up until now, CCS has not received much dedicated regulatory attention. This creates some uncertainty for market actors that often need to operate across multiple countries and with extended time horizons.” In fact, clarity on issues such as “safety, monitoring and verification, liability, permits, intellectual property rights, trade of CO2 and infrastructure between countries, and accounting for CO2 capture and use is a precondition for the investment case”. The beneficial regulatory treatment, as well as tools to address such challenges, presented through the TEN-E to PCIs, has an important role to play – evidently in particular for projects pertaining to the full CO2 capture and storage value chain.

Inclusion of transport modalities other than pipeline

Bellona Europa has long argued for the inclusion of other transport modalities than pipelines in the TEN-E, and it is disheartening to see that the Impact Assessment states this as an option discarded at an early stage. We take issue with several of the Impact Assessment’s statements on this point, in particular as outlined below:

- “it is not clear how the inclusion of transport with mobile assets such as ships in the TEN-E Regulation would help the implementation of such projects”

While open access to infrastructure such as pipelines is important and will help to scale-up use of CO2 networks, similarly will transport by other modalities such as ship, truck, train and barge. Compared to

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transport by pipelines, it is a substantially less risky investment and could additionally help incentivize smaller capture facilities.

Article 4.3(c) of the TEN-E regulation states the criteria for carbon dioxide transport:

1) avoid carbon dioxide emissions while maintaining security of energy supply;

2) **increase the resilience and security of carbon dioxide transport**;

3) efficient use of resources, by enabling the connection of multiple carbon dioxide sources and storage sites via common infrastructure and minimizing environmental burden and risks.

Transport by other modalities than pipelines can in fact fulfill all of these criteria. Having more than one method of transport increases flexibility and therefore also the resilience and security of CO2 transport. Transport by ships, as one example, is by itself more flexible and can easily be connected to port storage facilities, which are already covered by TEN-E, making it a natural extension of a CO2 transport network.

CO2 storage must be developed and deployed in coherence with transport infrastructure. If storage sites in Member States are scaled with only domestic considerations in mind, free and fair access to CO2 storage across the EU Single Market is an unlikely outcome. The TEN-E is the key tool in the hands of the EU to incentivize cross-border considerations in this respect.